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Soviet test coding stymies U.S. monitoring efforts

By Bill Gertz
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Soviet coding of missile test data has prevented the United States from identifying the characteristics of new and modernized ballistic missile systems and has created barriers for future arms treaties, a secret 1984 report on Soviet arms control violations says.

Critics opposed to spending enormous sums on U.S. technical spy systems to monitor Soviet missiles charge that the coding — called missile telemetry encryption — is an example of how the Soviet Union exploited U.S.-Soviet cooperation during the 1970s.

The report on "Soviet Non-Compliance with Arms Control Agreements" contains details of U.S.-Soviet diplomatic exchanges on the issue and reveals that the encryption has left U.S. spy systems unprepared to provide adequate verification of past arms control limits on intercontinental ballistic missiles.

The Reagan administration entered arms talks with the Soviet Union last March with public assurances that any agreements would be verifiable. Secretary of State George Shultz, in May 1984, stated that "provisions for effective verification of compliance by all parties" is a basic U.S. objective in the arms talks.

Regarding treaty compliance in Soviet missile tests of new SS-24 and SS-25 ICBMs and SSN-20 submarine-launched ICBMs, the report states that "in none of these cases are there alternative, normally available sources of data, a fact of which we must assume the Soviets are aware."

U.S. diplomats at a Geneva arms control commission warned the Soviets that telemetry encryption presents a "serious obstacle" to reaching any new arms agreements with the Soviets, the report states.

"Such encryption impairs the U.S. capabilities to verify compliance with key provisions of the SALT II Treaty, particularly those parts ... establishing permissible characteristics of new and modernized ICBMs," the report says.

The SALT II treaty was signed in 1979 but never ratified by Congress. While questions of verification have persisted, both both sides have agreed not to undercut the treaty's provisions. The treaty permits some telemetry encryption but prohibits coding that hinders the ability to verify compliance with certain provisions, such as limits on warhead-to-launcher weight ratios.

President Reagan reported to Congress in June that the United States will continue its "no undercut" policy and ordered the Pentagon to prepare a report by November outlining possible U.S. countermeasures to reported Soviet arms violations.

In addition to violating curbs on encryption, the Soviets also have been accused of building warheads, bombers, new missiles and defense systems beyond treaty levels.

Telemetry is data broadcast from computers located in missile nose cones to ground control centers during test flights. If left uncoded, it can provide details on missile size and accuracy.

The report reveals how Soviet negotiators to the Geneva Standing Consultative Commission on arms control dismissed U.S. objections to telemetry encryption. An unnamed Soviet commissioner, when asked why data was concealed on a test of the SS-25, denied the charge but added that both sides "have no strict obligations to act in accordance" with SALT II since it was never ratified.

The Soviet official tried to obtain details of U.S. monitoring capabilities by requesting that U.S. officials provide parameters of what information could not be picked up. The United States turned down the Soviet request since it would have allowed the Soviets to know the limits of U.S. electronic collectors and thus compromise the system's effectiveness, the report states.

Besides compliance-verification data, telemetry intercepts from satellite reconnaissance can be used to determine a missile's potential threat and to formulate defensive measures.

Analysts believe U.S. technical intelligence collection systems have already been compromised by Soviet telemetry encryption since the systems were designed specifically to verify compliance with arms control agreements.

Angelo Codevilla, an intelligence expert with Stanford University's Hoover Institution, said that during the era of detente the United States decided to invest billions of tax dollars in technical spy systems primarily intended for arms control verification.

"Nearly all of the technical systems were built to monitor the world conceived by Robert McNamara in the late '60s and [by] Henry Kissinger in the early '70s," Mr. Codevilla said in an interview. "That is to say, a world of stability and increasing cooperation between the United States and the Soviet Union ... a largely predictable, peaceful world where space would be a sanctuary from which, by agreement and custom, intelligence systems would be allowed to operate."

Consequently, the U.S. intelligence community was divided among Pentagon planners who prefered conflict-oriented defense intelligence systems and technologists who wanted systems designed to verify arms agreements.

"So the question was to what extent do we take these billions away from the systems conceived according to this world, and devote them to systems built according to a very different perception of the world, systems that would not necessarily give you terribly fine pictures of silos, but systems that would allow you to target forces and increase command and control centers," Mr. Codevilla said.

The problem is that the U.S. systems were built without serious concern for Soviet capabilities to manipulate or frustrate them, Mr. Codevilla said. Technical systems were designed to monitor signal-to-noise ratios, electronic sensitivity, to collect high numbers of channels and for multiplex signal monitoring.

"These are important technical issues, but they never addressed the issue: the Soviets are going to find out something about your system, something about its existence, and given that knowledge, what are they going to do with it?" Mr. Codevilla asked. "How can you check on the extent to which they are using that channel to pass information to you and how do they modify their exposure to your system?"

Relying on intelligence collection to verify arms control agreements will present greater problems in the future as Soviet weapons systems, currently stationary and easily

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detectable by overhead satellites, become more mobile, Mr. Codevilla said.

"Most forces ... in the Soviet Union, including missile forces, are terribly mobile," he added.

A CIA estimate released in June shows that by the mid-1990s, mobile land-based ICBMs will account for more than 12 percent of the total Soviet strategic arsenal.

Without adequate counterintelligence on technical systems, the United States will continue to be vulnerable to Soviet concealment practices such as telemetry encryption, Mr. Codevilla said.